COURSE: DIPLOMA IN PROCUREMENT AND SUPPLY CHAIN MANAGEMENT.

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Assignment #: 4

Admission #: AIPMS/243/2019

ASSIGNMENTS

1. What is Value chain analysis and what its main elements?

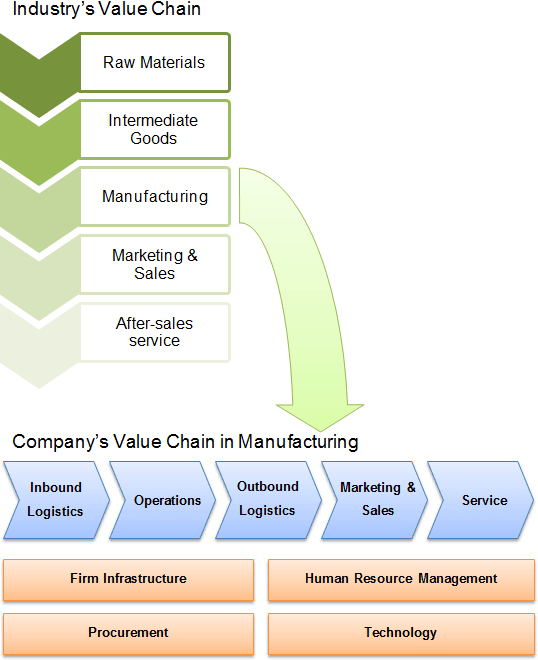
Value chain analysis (VCA): Is a process where a firm identifies its primary and support activities that add value to its final product and then analyze these activities to reduce costs or increase differentiation.

Value chain: Represents the internal activities a firm engages in when transforming inputs into outputs.

Understanding the tool: Value chain analysis is a strategy tool used to analyze internal firm activities. Its goal is to recognize, which activities are the most valuable (i.e. are the source of cost or differentiation advantage) to the firm and which ones could be improved to provide [competitive advantage](https://www.strategicmanagementinsight.com/topics/competitive-advantage.html). In other words, by looking into internal activities, the analysis reveals where a firm’s competitive advantages or disadvantages are. The firm that competes through differentiation advantage will try to perform its activities better than competitors would do. If it competes through cost advantage, it will try to perform internal activities at lower costs than competitors would do. When a company is capable of producing goods at lower costs than the market price or to provide superior products, it earns profits.

M. Porter introduced the generic value chain model in 1985. Value chain represents all the internal activities a firm engages in to produce goods and services. VC is formed of primary activities that add value to the final product directly and support activities that add value indirectly.

Although, primary activities add value directly to the production process, they are not necessarily more important than support activities. Nowadays, competitive advantage mainly derives from technological improvements or innovations in business models or processes. Therefore, such support activities as ‘information systems’, ‘R&D’ or ‘general management’ are usually the most important source of differentiation advantage. On the other hand, primary activities are usually the source of cost advantage, where costs can be easily identified for each activity and properly managed.

Firm’s VC is a part of a larger industry's VC. The more activities a company undertakes compared to industry's VC, the more [vertically integrated](https://www.strategicmanagementinsight.com/topics/vertical-integration.html) it is. Below you can find an industry's value chain and its relation to a firm level VC.

1. What are the seven variables which production personnel‘s should zero in?

According to Rebecca McClay; [Operations management](https://www.investopedia.com/terms/o/operations-management.asp) is concerned with controlling the production process and business operations in the most efficient manner possible.

Operations management involves certain responsibilities. One of those responsibilities is ensuring the business operates efficiently, both in terms of using the least amount of resources necessary and in meeting customers' requirements to the highest standard economically viable. Operations management involves managing the process by which [raw materials](https://www.investopedia.com/terms/r/rawmaterials.asp), labor and energy are converted into goods and services. People skills, creativity, rational analysis and technological knowledge are all important for success in operations management. Which better clarify the following seven variables in which production personnel’s should zero in:

* 1. Zero Defects
  2. Zero Set-up Time
  3. Zero Handling
  4. Zero Batch Size
  5. Zero Breakdown
  6. Zero Lead Time
  7. Zero Surging

1. What is Just in Time management system?

The Just in Time methodology requires businesses to be extremely agile with the capability to handle a much shorter production cycle – so it’s not for everyone. If you’re considering adopting a Just in Time inventory management strategy, first ask yourself these questions:

* Can my product/s be manufactured or supplied in a very short period of time?
* Are my suppliers reliable and efficient enough to get products to me on time every time?
* Do I have a thorough understanding of customer demand, sales cycles, and seasonal fluctuations?
* Is my [order fulfillment system](https://www.tradegecko.com/product-tour/sales/order-fulfillment?hsLang=en-us) efficient enough to get orders to customers on time?
* Does my [inventory management system](https://www.tradegecko.com/overview?hsLang=en-us) offer the flexibility needed to update and manage stock levels on the fly?

When you can confidently say yes to all of the above, you’re in a good position to start reaping the benefits of a Just in Time business model.

Is JIT utopia?

Yes, but JIT has not been fully accepted by all as for some it is a good system to adopt and for others it has too many challenges that come with it as stated in the mentioned excuses below.

Can it be made to work?

Just-in-time production, or JIT, has probably received more attention in a short time than any other new manufacturing technique. The main reason is that JIT gets the credit for much of Japan’s manufacturing success.

Despite the extensive publicity and interest, few companies have implemented JIT in their manufacturing operations. If JIT provides all the benefits claimed for it, why have so few factories adopted it?

JIT’s widespread publicity has been a mixed blessing. The popular press, and even some technical articles, focus on the easily observable differences from batch production systems but ignore some of the more important but subtle features of JIT. Writers rarely get very far past the lower inventory costs attributable to JIT and seldom describe how the technique can improve the entire manufacturing process. Managers who have read only a little on JIT rarely understand how it can help their operations. Usually they focus on the fact that, in the end, JIT increases a company’s ROI.

More important than the reduction of inventory and greater ROI are the improvements in manufacturing that result from operating with low inventories. JIT removes the security blanket of high inventory and thus exposes related operating problems. These are problems that need to be faced and solved—and therein JIT can be seen to create hurdles of its own.

Converting to JIT means a big change—in the culture of a company as well as in its manufacturing operations. Established routines and rules become obsolete. Where backup inventories were once considered to be insurance against unexpected shortages or delays, they are now viewed as evidence of lack-luster planning or controls, even of laziness. Large production batches can no longer be viewed as beneficial because they help amortize setup costs. JIT forces the elimination of the waste inherent in long setups.

Few manufacturing organizations are very flexible, either in their operations or in the minds of their creators. A typical operation is like a huge steamship, for which a rapid change in course is difficult. Most factories have been making similar products using similar processes for many years; their managers are comfortable with what they know. In this environment, change comes slowly. This inflexibility combined with misperceptions of JIT keep a lot of executives from using JIT. They excuse themselves by saying: “I know JIT has done a lot for others, but our plant, and our processes, even our people, are different. In our situation, JIT won’t work.”

Since misperceptions create a roadblock to implementation of this valuable management technique, let’s look at them first.

## Problems with Suppliers

Excuse number 1: “Our suppliers won’t support JIT by delivering our raw material in small batches on a daily basis.”

JIT’s success depends on the high quality of incoming materials. If a supplier delivers a bad batch, the whole production line will stop! Once suppliers understand the consequences of failure, they will be sure to make on-time deliveries of high-quality materials. Although the relationship between manufacturer and supplier in a JIT setting entails risks, the rewards of perfect parts always delivered on time are tremendous.

## Late Production

Excuse number 2: “We will always have back orders in our factory. We are constantly expediting production to make up for these shortages and to complete products for shipment within the scheduled cycle time. If we go to JIT, the line will always be shut down, and our production will always be late.”

This is a common lament of production managers who feel that they are always making up for the poor performance of the materials department. In their view, although late deliveries of incoming materials or subassemblies are undesirable, late shipments of finished products are unacceptable. On the other hand, while the materials department tries to make deliveries on time, it knows that products can be made in much less than their scheduled time and it often helps the production manager expedite late orders so that shipments will not be missed.

**Need for Software**

Excuse number 3: “Our batch-oriented materials planning and control system won’t allow us to operate in a just-in-time mode. We need to install a just-in-time software package before we can convert our production operation.”

Experienced managers know that forcing a production process to fit a software system is a prescription for disaster. Desig8ning processes to conform to the requirements of a particular software package often makes operations less effective. The process needs to be converted first.

## Control of Inventory

Excuse number 4: “If we adopt just-in-time production, we won’t be able to track materials through the factory with work orders. So we’ll lose control of our inventory.”

## Low-Volume Operations

Excuse number 5: “We are a low-volume operation, so we couldn’t benefit from JIT.”

**What is its philosophical approach in terms of Batch size?**

Just-in-time' is a management philosophy and not a technique.

 It originally referred to the production of goods to meet customer demand exactly, in time, quality and quantity, whether the `customer' is the final purchaser of the product or another process further along the production line.

 It has now come to mean producing with minimum waste. "Waste" is taken in its most general sense and includes time and resources as well as materials. Elements of JIT include:

* Continuous improvement.
  + Attacking fundamental problems - anything that does not add value to the product.
  + Devising systems to identify problems.
  + Striving for simplicity - simpler systems may be easier to understand, easier to manage and less likely to go wrong.
  + A product oriented layout - produces less time spent moving of materials and parts.
  + Quality control at source - each worker is responsible for the quality of their own output.
  + Poka-yoke - `foolproof' tools, methods, jigs etc. prevent mistakes
  + Preventative maintenance, Total productive maintenance - ensuring machinery and equipment functions perfectly when it is required, and continually improving it.
* Eliminating waste. There are seven types of waste:
  + waste from overproduction.
  + waste of waiting time.
  + transportation waste.
  + processing waste.
  + inventory waste.
  + waste of motion.
  + waste from product defects.
* Good housekeeping - workplace cleanliness and organisation.
* Set-up time reduction - increases flexibility and allows smaller batches. Ideal batch size is 1item. Multi-process handling - a multi-skilled workforce has greater productivity, flexibility and job satisfaction.
* Levelled / mixed production - to smooth the flow of products through the factory.
* [Kanbans](http://www2.ifm.eng.cam.ac.uk/dstools/process/kanban.html) - simple tools to `pull' products and components through the process.
* Jidoka (Autonomation) - providing machines with the autonomous capability to use judgement, so workers can do more useful things than standing watching them work.
* Andon (trouble lights) - to signal problems to initiate corrective action.

**How can computers aid in development, analysis and Forecasting?**

In today’s business management operations, computers play vital roles in the following areas:

* Computers in marketing
* Computers in design and drafting
* Computers in purchasing and outsourcing
* Computers in materials management, including inw8ard logistics and stores
* Computer in operations planning, scheduling and control
* Computers in manufacturing
* Computer in process control and quality management
* Computers in technology and productive maintenance system
* Computers in productivity measurement, performance evaluation and reward system
* Computer in automatic assemblies
* Computers in finished product warehousing
* Computer in distribution or outbound logistics

Therefore, computers aid in meeting customers demands and needs in a systematic manner. The approach would be monitoring these so closely and frequently that we can forecast the trend in customer needs and preferences over time.

1. Describe the role of supporting computerized system in book keeping, processing and delivering of orders from customers?

Computerized Accounting Information Systems Along with the improvements in the technology, information systems have been computerized. Improvements in this technology have replaced manual bookkeeping systems with the computerized ones. As a result, accounting information systems that were previously performed manually are now performed by computers in most companies. Companies can now capture, process, store, and transmit data with the help of computers. Whereas data collections and processing were performed manually in historical systems, on-line collection and processing of data are performed by computerized systems (Grabski and Marsh, 1994: 63). Fortunately, improvements in the technology have enabled companies to collect, process, and retrieve data quickly. In addition, there is less likelihood for error when data are processed with computers. In computerized AIS, after data are captured, they should be converted into machine-readable form. In most computerized AIS, source data automation devices that capture data at the time and place of their origins are used since, there are existing data bases that contain the stored data for future processing. A database includes information about entities. For example, information about existing customers is stored in databases. In this case, customers represent entities. Information about customers such as account number, credit limit, and current balance of the customer can be stored in the database. It is also facilitating faster processing and deliveries of products to the customers in a timely manner.

1. **What is flexible manufacturing system? Can use of computers facilitate it and why?**

A **flexible manufacturing system** (**FMS**) is a manufacturing system in which there is some amount of [flexibility](https://en.wikipedia.org/wiki/Flexibility_(engineering)) that allows the system to react in case of changes, whether predicted or unpredicted. This flexibility is generally considered to fall into two categories, which both contain numerous subcategories.

The first category, routing flexibility, covers the system's ability to be changed to produce new product types, and ability to change the order of operations executed on a part. The second category is called machine flexibility, which consists of the ability to use multiple [machines](https://en.wikipedia.org/wiki/Machine) to perform the same operation on a part, as well as the system's ability to absorb large-scale changes, such as in volume, capacity, or capability.

Most **FMS** consist of three main systems. The work machines which are often automated CNC machines are connected by a [material handling](https://en.wikipedia.org/wiki/Material_handling) system to optimize parts flow and the central control computer which controls material movements and machine flow.

The main advantages of an FMS is its high flexibility in managing manufacturing resources like time and effort in order to manufacture a new product. The best application of an FMS is found in the production of small sets of products like those from a [mass production](https://en.wikipedia.org/wiki/Mass_production).

Technology has developed so rapidly that we are able to integrate computers into the process of manufacturing and this shorten the time involve setting up machine and changeover. Computers have imparted the much needed flexibility and reduce the response time for manufacturing units to changing customer demands.

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A version of this article appeared in the [March 1986](https://hbr.org/archive-toc/3862) issue of Harvard Business Review.

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Sources: Grant, R.M. (2010). Contemporary Strategy Analysis. 7th ed. John Wiley & Sons, p. 239-241